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FORM	I	First Na	amed Inventor	Lin Wang	
(to be used for all correspondence after initi	al filing)	Group A	Art Unit	1713	
		Examin	ner Name	Roberto Rabago	
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Complete if Known 10/659.169 Application Number Filing Date September 10, 2003 First Named Inventor Lin Wang **Examiner Name** Roberto Rabago

1713

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT

CL1518 US CNT Attorney Docket No.

METHOD OF PAYMENT (check all that apply) FEE CALCULATION (continued) ☐ Check ☐ Credit card Money Order 3. ADDITIONAL FEES Large Entity Small Entity Deposit Account: Fee Fee Fee Description Code Code (\$) (\$) Paid Deposit 105 130 205 65 Surcharge - late filing fee or oath 04-1928 Account 127 50 227 25 Surcharge - late provisional filing fee or Number cover sheet Deposit 139 130 139 130 Non-English specification E.I. du Pont de Nemours and Company Account 147 2,520 147 2,520 For filing a request for reexamination Name Requesting publication of SIR prior to 112 920* 112 920* The Commissioner is authorized to: (check all that apply) Examiner action Charge fee(s) indicated below Credit any overpayments 113 1.840* 113 1.8401 Requesting publication of SIR after Examiner action Charge any additional fee(s) during the pendency of this application 115 120 215 60 Extension for reply within first month Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account 116 450 216 225 Extension for reply within second month 117 1020 217 510 Extension for reply within third month **FEE CALCULATION** 118 1.590 218 795 Extension for reply within fourth month BASIC FILING FEE 128 228 2,160 1,080 Extension for reply within fifth month Large Entity Small Entity 119 500 219 250 Notice of Appeal Fee Fee Description 120 500 220 Filing a brief in support of an appeal 500.00 Code (\$) Code (\$) Fee Paid 121 1000 221 500 Request for oral hearing 101 1000 201 500 Utility filing fee Petition to institute a public use 1.510 1,510 138 138 106 430 206 215 Design filing fee 107 660 207 330 Plant filing fee 140 500 240 250 Petition to revive - unavoidable 108 1400 208 700 Reissue filing fee 141 1,500 241 750 Petition to revive - unintentional 114 200 100 Provisional filling fee 214 142 1,400 242 700 Utility issue fee (or reissue) 143 243 800 400 Design issue fee 144 100 244 SUBTOTAL (1) (\$) 550 Plant issue fee 122 130 122 130 Petitions to the Commissioner 2. EXTRA CLAIM FEES 123 50 123 50 Processing fee under 37 CFR 1.17(q) Extra Fee from Submission of Information Disclosure 126 180 126 180 Claims Paid Total Claims -20 х [10 50 Recording each patent assignment per 581 40 581 40 Independent property (times number of properties) 0 200 Filing a submission after final rejection 146 790 246 395 (37 CFR § 1.129(a)) Multiple 360 Dependent For each additional invention to be 149 790 249 395 examined (37 CFR § 1.129(b)) Small Entity Large Entity 179 790 279 395 Request for Continued Examination Fee Fee Fee Description (RCE) Code (\$) Code (\$) 169 900 169 900 Request for expedited examination of a 103 50 25 203 Claims in excess of 20 design application 102 200 202 100 Independent claims in excess of 3 104 360 204 180 Multiple dependent claim, if not paid Other fee (specify) ** Reissue independent claims over 109 209 200 100 original patent ** Reissue claims in excess of 20 and 110 50 210 25 over original patent

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APPLICATION NO.:

10/659,169 CL1518 US CNT PATENT

GROUP ART UNIT 1713

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

THAPPE APPLICATION OF:

LIN WANG, ET AL.

APPLICATION NO.:

10/659,169

FILED:

SEPTEMBER 10, 2003

FOR:

MANUFACTURE OF POLYETHYLENES

GROUP ART UNIT:

1713

EXAMINER:

ROBERTO RABAGO

ATTORNEY DOCKET NO .:

CL1518 US CNT

APPEAL BRIEF UNDER 37 C.F.R. § § 1.191 & 41.37

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Sir:

Pursuant to 37 C.F.R. § § 1.191, 41.37(c), 41.37 generally, and MPEP § 1205.01, ¶ 6 (Revision 5), the following is an Appeal Brief in support of the Appeal filed December 21, 2006, appealing the Final Office Action dated August 25, 2006 and the Advisory Action dated November 15, 2006.

Submitted herewith is the filing fee in the amount of \$500.00 for this Appeal Brief in accordance with 37 C.F.R. § 41.20(b)(2). Please charge said fee to Deposit Account No. 04-1298 (E. I. du Pont de Nemours and Co.).

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Application Number: 10/659,169 Filing Date: September 10, 2003

Applicant: Lin Wang

Title: Manufacture of Polyethylenes Attorney Docket: CL1518 US CNT

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I. REAL PARTY IN INTEREST

The real party in interest is the Assignee of the case, E. I. DuPont de Nemours & Co., a

Delaware corporation (hereinafter, "DuPont").

II. RELATED APPEALS AND INTERFERENCES

None known to Appellants.

III. STATUS OF THE CLAIMS

Claim 1-25, 29, and 34 are canceled. Claims 26-28, 30-33, and 35-39 remain in the

case. Claims 26-28, 30-33, and 35-39 have been rejected under 35 U.S.C. § 103(a).

Said rejection is the subject of this appeal. No claims are allowed.

IV. STATUS OF AMENDMENT

There were no amendments after the final rejection, so there are no "pending"

amendments.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Generally, the present application describes blends of (co)polyethylenes made in a

polymerization reactor, by using at least two different polymerization catalysts.

Ethylene, and one or more α -olefins, are fed to and/or formed in the polymerization

reactor. Because said two different polymerization catalysts have differing activities

with regard to the polymerization of α -olefins, two (co)polyethylenes, differing in

comonomer (α -olefin) content, are produced.

The process(es) for making these polymers is (are) generally described at page 6, line

21 to page 7, line 30; page 12, lines 13-19; page 13, line 23 to page 15, line 3; and

page 16, lines 5-8 and 15-16 in the original Specification. A general description of the

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polymers produced by this process is found at page 6, lines 21-29; and page 17, line 16 to page 18, line 26. Not included in the above listings are more preferred items such as preferred polymerization or oligomerization catalysts.

Claim 26

In the claims under consideration, Claim 26 is the only independent claim. Claim 26 relates to a process for producing a blend of two or more polyethylenes, which comprises contacting ethylene (page 6, lines 21-29), one or more α -olefins of the formula R¹⁸CH=CH₂ wherein R¹⁸ is n-alkyl containing an even number of carbon atoms (page 6, line 30 to page 7, line 10), a first active polymerization catalyst to copolymerize ethylene and the separately added α -olefins (page 12, lines 13-19; and page 13, line 23 to page 14, line 22), a second active polymerization, that under the polymerization conditions, has little, or no tendency, to copolymerize ethylene and α -olefins (page 13, lines 14-22; and page 14, line 23 to page 15, line 3). These polymerization catalysts must be Ziegler-Natta and/or metallocene catalysts (page 13, lines 26-31; and page 14, lines 23-25), with a *proviso* that when the first and second active polymerization catalysts are metallocenes, said one or more added olefins of the formula R¹⁸CH=CH₂ must be a series (two or more) of olefins (page 6, line 31 to page 7, line 1).

As noted in the Application, other process conditions are "normal" for the particular catalysts used in the polymerization (page 16, lines 15-16). These conditions would include conditions such as, whether the process was continuous, batch, or semi-batch; gas phase or liquid phase (suspension or solution) process, whether one or more of the catalysts were supported or not; whether and what catalyst activators would be used; temperature; pressure; etc. Such a condition (gas phase process) is only mentioned specifically only in claim 32, so these conditions are not dwelled upon here.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection to be reviewed on appeal is the rejection of Claims 26-28, 30-33, and 35-39 under 35 U.S.C. § 103(a), as obvious over European Patent Application EP 128046, to Ewen, et al. (hereinafter, "Ewen").

VII. ARGUMENT

(A) REJECTION UNDER 35 U.S.C. § 103(A)-CLAIMS 26-28, 30-33, & 35-39 OVER EUROPEAN PATENT APPLICATION EP 128046, TO EWEN, ET AL.

Provided below is the Appellants' traversal of the Final Rejection and Advisory Action, and Arguments in support thereof.

The main issue in this rejection is whether the Ewen teaches or suggests that two or more α -olefins be used in its polymerization process. As the Examiner has pointed out, the Ewen reference suggests the use of two metallocene catalysts having different propensities to copolymerize ethylene and an α -olefin. However the Examiner further contends that Ewen teaches using two or more α -olefins. Appellants dispute this contention.

First we deal with whether Ewen actually states that more than one α -olefin be used in the polymerization, as the present claims require, when two metallocene catalysts are used. The page and line number referred to below are to publication EP 0128046A1 to Ewen, et al. ("Ewen"), and not the issued patent. Ewen's description of the invention starts at page 3 line 9. Pertinent quotes are as follows (Emphasis added in each case):

- (a) Page 3, lines 10-12:
 "The. . . invention provides a process for producing (co)polyolefin reactor blends comprising polyethylene and (co)polyethylene-α-olefins."
- (b) Page 3, lines 15-16:
 ". . .simultaneously polymerizing ethylene an copolymerizing ethylene with an α-olefin. . ."
- (c) Page 3, lines 26-27:

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". . .polymerization of reactor blends of polyethylene with ethylene- α -olefin copolymers;. . "

- (d) Page 4, lines 27-30:
 - "The. . .invention is directed towards a catalytic process for the polymerization of ethylene and one or more α -olefins to polyethylene-copolyethylene- α -olefin reactor blends."
- (e) Page 4, line 35 to Page 5, line 1:
 - ". . .with copolyethylene higher α -olefins having from 3 to about 10 carbon atoms and preferably 4 to 8 carbon atoms."
- (f) Page 5, lines 1-2:

"Illustrative of the higher α -olefins are propylene, butene-1, hexene-1 and octene-1."

- (g) Page 5, line 3:
 - "Preferably, the α -olefin is propylene or butene-1.
- (h) Page 5, lines 4-5:

"In the process of the present invention, ethylene, together with the α -olefins, is polymerized. . ."

- (i) Page 11, lines 10-11:
 - ". . .is known for blend of ethylene and copolymers of ethylene and higher α -olefins."
- (j) Page 17, Claim 8:
 - ". . .polymerizing ethylene and at least one α -olefin simultaneously. . ."

In opinion of the Appellants, at best, these quotes taken together are ambiguous in suggesting whether or not two or more α -olefins are used. For example, points (d) and (j) unambiguously support the use of more than one α -olefin. On the other hand, (b) and (g) clearly suggest that only one α -olefin should be used. The rest of the quotes, whether using singular or plural, seem to use the singular or plural merely to make the text read better. For instance, point (f) above stating that "Illustrative of the higher α -olefins are propylene, butene-1, hexene-1 and octene-1;" becomes cumbersome when read as: "Illustrative of the higher α -olefin are propylene, butene-1, hexene-1 and octene-1."

Therefore, Appellants look for other evidence in Ewen to understand what exactly does the disclosure intend convey. At page 8, lines 30-33 Ewen states (in essence) that the sterically larger the monomer (α -olefin), the less it will tend to copolymerize with

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ethylene. One skilled in the art would probably take this to mean that various α -olefins would copolymerize at different rates because of their differing sizes, and therefore use of more than one α -olefin would not be desirable, thus teaching away from using more than one α -olefin.

Even more illustrative are the polymer products made in the examples and mentioned as possible products. Although Appellants are aware that the disclosure is not limited to such items, in this instance, they will assist the artisan in interpreting what Ewen is disclosing. As the Examiner has noted, none of the examples illustrates using more than one α -olefin. At page 11, lines 3-4, a list of products which can be produced by Ewen's process are disclosed and they are "HDPE/EPR copolymer, LLDPE/EPR copolymer, HDPE/LLDPE and HDPE/LLDPE/EPR copolymer blends". HDPE is high density polyethylene, normally an ethylene homopolymer, EPR is an acronym for ethylene-propylene rubber, a polymer containing only one α -olefin, propylene. LLDPE is a copolymer of ethylene and an α -olefin. Although in theory more than one α -olefin could be used to make an LLDPE, one skilled in the art would immediately think of LLDPE that contains only one α -olefin, since these are by far more common than those that could contain more than one α -olefin.

Thus, the "extrinsic evidence" within Ewen itself does not support the idea that Ewen discloses or suggests the use of more than one α -olefin in his process. After reading Appellants' invention and then Ewen, it would be easy to interpret Ewen as suggesting the use of more than one α -olefin. However, this is the use of impermissible hindsight. "One of more difficult aspects of resolving questions of nonobviousness is necessity to guard against slipping into use of hindsight." "Thus, in deciding the issue of obviousness, [the court] must look at the prior art presented from a vantage point in time prior to when the invention was made,..." Absent knowledge of the present invention an artisan would not look upon Ewen as suggesting the use of more than one α -olefin in

¹ In re Carroll, 601 F.2d 1184, 1186 (CCPA 1979) (citing Graham v. John Deere Co., 383 U.S. 1, 36 (1965)).
² Id.

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his process, because ". . .it is well settled that the entire disclosure of a reference must be considered under 35 USC \S 103. . ."

Appellants also point out that Ewen prefers the use of propylene or butene-1 (page 5, line 3). Even if one were to use both of these favored α -olefins in the polymerization process, one would not meet the limitations of the present claims, which require at least two α -olefins having an even number of carbon atoms present in the polymerization. However, there is no clear exposition in the reference that a series of α -olefins should be used, much less a series of α -olefins wherein the olefins must have an even number of carbon atoms. In other words, Ewen does not suggest that at least two α -olefins having an even number of carbon atoms be present in the polymerization, which is an essential limitation of the rejected claims when two metallocene catalysts are present.

Furthermore, when one looks at Examples 1(a), 1(b), 1(c), 2, and 3 in Ewen for guidance, it is clear that Ewen uses only one α -olefin with ethylene. In fact, Ewen uses only propylene in all its examples. Ewen therefore must be interpreted to mean the use of one α -olefin.

For the above reasons, Ewen does not render the presently rejected claims obvious.

³ Ex parte Anderson, 21 U.S.P.Q. 2d 1241 (BPAI 1991) (citing In re Mills, 470 F.2d 649, (CCPA 1972)).

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VIII. CONCLUSION

Date: February 12, 2007

For the reasons set forth above, the Board of Patent Appeals and Interferences is respectfully requested to reverse the final rejection of pending Claims 26-28, 30-33, and 35-39 and indicate allowability of all claims.

Please charge any fee due which is not accounted for to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully Submitted,

BY:

RAKESH H. MEHTA, ESQUIRE ATTORNEY FOR APPELLANTS REGISTRATION No.: 50,224

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CLAIMS APPENDIX

- **26.** A process for producing a blend of two or more polyethylenes, comprising the step of contacting:
 - (1) ethylene;
 - (2) one or more separately added α -olefins of the formula R¹⁸CH=CH₂, wherein R¹⁸ is alkyl, wherein R¹⁸ has an even number of carbon atoms;
 - (3) a first active polymerization catalyst under conditions to copolymerize ethylene and the separately added α -olefins; and
 - (4) a second active polymerization catalyst under conditions to polymerize ethylene, but has little or no tendency to copolymerize ethylene and α-olefins,

and provided that said first and said second active polymerization catalysts are selected from the group consisting of Ziegler-Natta catalysts and metallocenes,

and further provided that when said first active polymerization catalyst and said second active polymerization catalyst are both metallocenes, said one or more separately added olefins is a series of olefins of the formula R¹⁸CH=CH₂.

- 27. The process as recited in claim 26 wherein a series of α -olefins of the formula R¹⁸CH=CH₂ are present.
- 28. The process as recited in claim 26 wherein the second active polymerization catalyst is chemically different than the first active polymerization catalyst.

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- **30.** The process as recited in claim 26 wherein the first polymerization catalyst is a metallocene-type catalyst.
- **31.** The process as recited in claim 26 wherein the first polymerization catalyst and second polymerization catalyst are supported.
- **32.** The process as recited in claim 31 carried out in the gas phase.
- 33. The process as recited in claim 32 wherein the second active polymerization catalyst is chemically different than the first active polymerization catalyst.
- **35.** The process as recited in claim 26 wherein the first and second polymerization catalysts are both metallocenes.
- **36.** The process as recited in claim 28 wherein the first and second polymerization catalysts are both metallocenes.
- **37.** The process as recited in claim 31 wherein the first and second polymerization catalysts are both metallocenes.
- **38.** The process as recited in claim 33 wherein the first and second polymerization catalysts are both metallocenes.

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The process as recited in claim 26 wherein at least one $\alpha\text{-olefin}$ wherein R^{18} 39. contains an odd number of carbon atoms is also present.

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EVIDENCE APPENDIX

None

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RELATED PROCEEDINGS APPENDIX

None